

# 4.1

## Classifying Triangles

**Goal** Classify triangles by their sides and by their measures.

### VOCABULARY

Triangle

Vertex

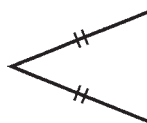
### CLASSIFICATION OF TRIANGLES BY SIDES

**Equilateral  
Triangle**



\_\_\_ congruent  
sides

**Isosceles  
Triangle**



At least \_\_\_  
congruent sides

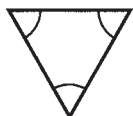
**Scalene  
Triangle**



\_\_\_ congruent  
sides

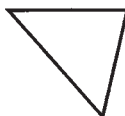
### CLASSIFICATION OF TRIANGLES BY ANGLES

**Equiangular  
Triangle**



\_\_\_ congruent  
angles

**Acute  
Triangle**



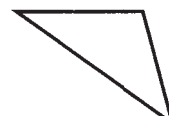
\_\_\_ acute  
angle(s)

**Right  
Triangle**



\_\_\_ right  
angle(s)

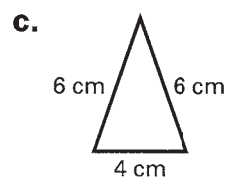
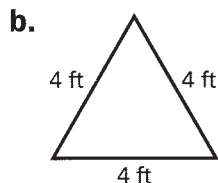
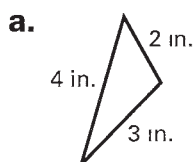
**Obtuse  
Triangle**



\_\_\_ obtuse  
angle(s)

**Example 1** *Classify Triangles by Sides*

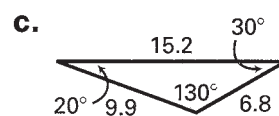
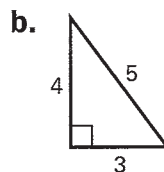
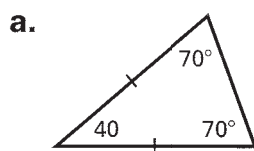
Classify the triangle by its sides.

**Solution**

- a. Because this triangle has \_\_\_ congruent sides, it is \_\_\_\_\_.  
b. Because this triangle has \_\_\_ congruent sides, it is \_\_\_\_\_.  
c. Because this triangle has \_\_\_ congruent sides, it is \_\_\_\_\_.

**Example 2** *Classify Triangles by Angles and Sides*

Classify the triangle by its angles and by its sides.

**Solution**

- a. Because this triangle has 3 angles with measures less than  $90^\circ$ , it is \_\_\_\_\_. Because it has 2 congruent sides, it is \_\_\_\_\_. So, it is a(n) \_\_\_\_\_ triangle.  
b. Because this triangle has a right angle, it is \_\_\_\_\_. Because it has no congruent sides, it is \_\_\_\_\_. So, it is a(n) \_\_\_\_\_ triangle.  
c. Because this triangle has one angle greater than  $90^\circ$ , it is \_\_\_\_\_. Because it has no congruent sides, it is \_\_\_\_\_. So, it is a(n) \_\_\_\_\_ triangle.

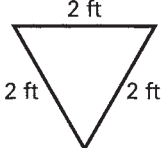
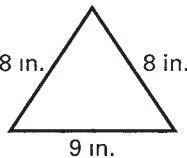
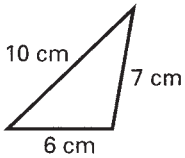
### Follow-Up

Can a triangle be both acute and obtuse?

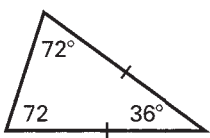
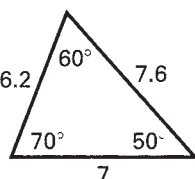
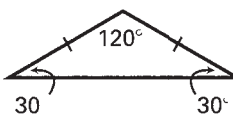
Can a triangle be both equilateral and acute?

Can a triangle be both scalene and isosceles?

**✓ Checkpoint** Classify the triangle by its sides.

<b>1.</b> 	<b>2.</b> 	<b>3.</b> 
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Classify the triangle by its angles and by its sides.

<b>4.</b> 	<b>5.</b> 	<b>6.</b> 
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### Example 3 Identify the Parts of a Triangle

Identify which side is opposite each angle.

#### Solution

$\overline{BC}$  is the side that is opposite \_\_\_\_.

$\overline{AC}$  is the side that is opposite \_\_\_\_.

$\overline{AB}$  is the side that is opposite \_\_\_\_.

